



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,632	09/05/2006	Martyn Vincent Twigg	JMYT-370US	3293
23122	7590	07/09/2008		
RATNERPRESTIA				
P O BOX 980				
VALLEY FORGE, PA 19482-0980				
EXAMINER				
TAKEUCHI, YOSHITOSHI				
ART UNIT		PAPER NUMBER		
4162				
MAIL DATE		DELIVERY MODE		
07/09/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/591,632

Applicant(s)

TWIGG, MARTYN VINCENT

Examiner

YOSHITOSHI TAKEUCHI

Art Unit

4162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10, 15, 16 and 18-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8, 10, 15, 16 and 18-23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 05 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5 Sept 2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: the sentence has an unneeded article "the" between the words "wherein the liquid containing" and "at least one catalyst."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 6, 8, 10, 15, 16, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. Claim 1 recites the limitation "the evacuated channel walls." There is insufficient antecedent basis for this limitation in the claim.
3. Claim 6 and 8 recites the limitation "the D50." There is insufficient antecedent basis for this limitation in the claim.
4. Claim 10 recites the limitation "the loading." There is insufficient antecedent basis for this limitation in the claim.
5. Claim 15 recites the limitation "the material." There is insufficient antecedent basis for this limitation in the claim.
6. Regarding claim 15, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

7. Claim 16 recites the limitation "the virgin filter material." There is insufficient antecedent basis for this limitation in the claim.
8. Claim 18 recites the limitation "the pressure," "the pore structure of the filter walls", and "the isolated and evacuated channels." There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 3, 5, 7, 18, 19, 20, 21, 22, 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Foerster et al (US 6,149,973).

Regarding claim 1, Foerster teaches a method of coating a catalyst on a ceramic honeycomb catalyst carrier comprising a plurality of channels, which comprising steps of: (a) reducing the pressure in a pore structure of the channel walls relative to the surrounding atmospheric pressure; (b) contacting a surface of the evacuated channel walls with a liquid containing at least one catalyst component or a precursor thereof, whereby the liquid permeates the evacuated channel walls; (c) drying the filter containing the catalyst component or its precursor; and (d) calcining the filter containing the catalyst component or its precursor. (Abstract).

Regarding claim 3, Foerster teaches the use of a partial vacuum during the filling and the removal of the catalyst carrier. (Column 5, lines 18-27).

Regarding claims 5, 7, 22 and 23, Foerster teaches an aqueous liquid (column 8, line 22) containing at least one catalyst component comprises a dispersion of aluminum oxide (column 7, line 47 and column 8, line 42).

Regarding claims 18, 19, 20, Foerster teaches an apparatus for use in manufacturing a ceramic honeycomb catalyst carrier coated with a catalyst, comprising means for sealingly isolating a plurality of channels of the ceramic wall-flow filter from the surrounding atmosphere, means for reducing the pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls, at least one reservoir for holding a liquid containing at least one catalyst component or a precursor thereof and means for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid, a pressuisable container having a sealable closure for receiving the ceramic filter, and a means for maintaining the reduced pressure in the isolated channels to below the surrounding atmospheric pressure during dosing of the liquid. (Figure 1 and column 6, line 52-column 7, line 26).

Regarding claim 21, Foerster teaches a method for rapid removing the liquid (column 5, lines 39-65), so that "the time between the beginning of the fill cycle and the end of the emptying and clearance extraction amounts to no more than 5 seconds." Because of the increase in production and short production times, it is implied the Foerster process is at least semi-automatic.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 10 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 2, 4, 6, 8, 10, 15, 16, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foerster et al (US 6,149,973).

Regarding claim 2, Foerster teaches coating a catalyst on a ceramic honeycomb catalyst carrier (see response to claim 1), but does not explicitly teach repeating the claimed steps: (b) and (c) of claim 1 prior to the claimed step (d) of claim 1. However, Foerster teaches, “a sufficiently large surface area for the catalytically active components can only be made available through application of a support coating of fine particulate, high surface materials. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to reapply the catalyst-impregnated liquid and drying prior to calcining

the filter if the first coating does not provide a sufficient amount of particulates to provide the requisite amount of surface area.

Regarding claim 4, Foerster teaches the purpose of the washcoat particles is to increase the surface area on which the catalyst is coated (column 1, lines 51-57) since “it is not possible to guarantee the required fine distribution of the catalytically active components through deposition of these components on the geometric surfaces of the catalyst carriers” (column 1, lines 42-45). The key characteristics of the washcoat particle material are being inert, adhering to both the catalyst and the ceramic carrier, and being physically stable. As a result, it would have been obvious to one having ordinary skill in the art at the time of the invention to use a metal salt, since a metal salt would be inert, adhere to both the catalyst and the ceramic carrier, and be physically stable.

Regarding claim 6 and 8, Foerster teaches using aluminum oxide as a washcoat material and furthermore teaches that “it is not possible to guarantee the required fine distribution of the catalytically active components through deposition of these components on the geometric surfaces of the catalyst carriers” (column 1, lines 42-45) so the washcoat particles are added to increase the surface area on which the catalyst is coated (column 1, lines 51-57). It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the size of the washcoat particles for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272 (CCPA 1980).

Regarding claim 10, it is well known that (1) catalysts work by facilitating a chemical reaction on the catalyst's surface and (2) the amount of catalyst surface area affects the speed of how quickly the catalyst can affect the reaction. Foerster teaches “finely distributed

platinum group metals...are used for the conversion of pollutants.” (Column 1, lines 36-39).

As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a certain amount of catalyst per liter of solution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272 (CCPA 1980).

Regarding claim 15, Foerster teaches the use of a “[c]eramic catalyst carriers with cell densities of 62 cm^{-2} are still predominantly used today for the exhaust purification of passenger vehicles.” (Column 1, lines 28-34). The type of ceramic in the ceramic carrier does not affect the quality of the catalytic conversion, other than needing to remain inert and retain its shape. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a ceramic material as claimed for the ceramic catalyst carrier material, as an inert material that retains its shape.

Regarding claim 16, Foerster teaches a wide variety of cell densities are being used and developed. “[T]he cell density of the flow channels varies between 10 and 120 cm^{-2} . Honeycomb carriers with cell densities up to 250 cm^{-2} and more are being developed.” (Column 1, lines 21-25). Foerster further teaches “[c]eramic catalyst carriers with cell densities of 62 cm^{-2} are still predominantly used today.... The cross sectional dimensions of the flow channels in this case amount to $1.27 \times 1.27\text{ mm}^{-2}$.” (Column 1, lines 29-34). As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a ceramic catalyst carrier with porosity within a certain range, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272 (CCPA 1980).

Regarding claim 21, Foerster teaches a method for rapid removing the liquid (column 5, lines 39-65), so that “the time between the beginning of the fill cycle and the end of the emptying and clearance extraction amounts to no more than 5 seconds.” Because of the increase in production and short production times, it would have been obvious to one of ordinary skill in the art at the time of the invention to automate the process in order to take advantage of the decreased process time in order to increase productivity from each manufacturing line.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOSHITOSHI TAKEUCHI whose telephone number is (571) 270-5828. The examiner can normally be reached on Monday-Thursday 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yoshitoshi Takeuchi/
/Jennifer McNeil/
Supervisory Patent Examiner, Art Unit 4162